

Pick Matemati i Mekh

*Vol. XV, no. 4, pp. 409 -
432*

*Operations of Motion of a Viscous Gas -
S. V. Vallander*

Prizy - 11236

A. 4151

UT-920 (wak) SP

Asymmetric Elastic/Plastic Problem for Plate,
Weakened by a Circular cut, by K. N. Shevchenko
RUSSIAN, per, Prikladnaya Matematika i Mekhanika,
Vol 15, 1951, pp 519-520.

*NEC LB/G/2482

NLL Ref. 5828.1/F (12215)

Sci/Materials
Nov 66

Stresses in a Plane, Ponderable Medium With Two
Uniform, Symmetrically Placed ~~Small~~ Circular
Holes, by D. I. Sherman, 13 pp.

RUSSIAN, per, Prikl Matemat i Mekh, Vol XV, No 6,
1951, pp 751-761.

26,765

Doc 100 M 1955
Sci Nu Lib Tr 55/1325
BCL No 491

Scientific - Physics

Sep 55 CTS

Some General Methods of Solving Problems in
The Theory of Plasticity, by I. A. Birger,
8 p.

RUSSIAN, paper, Prikladnaya Matematika, 1951, Vol XV,
pp 765-770.

ATB-77L35E

Sci
Apr 60
Vol XIX, No 2

113,579

Prikladnaya Matematika i Mekhanika /Applied Mathematics
and Mechanics/ Volume XV, No 6 (Nov/Dec 1951), pages
771-2. FDD copy.

"Approximate Integration of Differential Equations with
Lagging Argument"

author: L. E. El'sgol'ts (Moscow)

11640 ST-256 SR 26 Mar 52

Barenblatt, G.I.
SOME IRREGULAR MOTIONS OF A LIQUID AND A
GAS IN A POROUS MEDIUM. 17 p. 4 refs. MTWL: 627.
Order from OTS or ETC \$1.85 61-17229

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1952, v. 16, no. 1, p. 67-78.

DESCRIPTORS: *Porous materials, Fluid flow, Gas
flow, *Aerodynamics, *Hydrodynamics, Theory.

61-17229

- I. Barenblatt, G.I.
- II. MTWL-627
- III. Stichting Moeilijk
Toegankelijke Wetenschap-
pelijke Literatuur

Office of Technical Services

The Impact on a Lamina With Discontinuous
Streamline Flow, by M. I. Gurevich, 8 p.

RUSSIAN, part, Prikl Mat i Mech, 1959, Vol 13, No 1, p 110.

SLA 59-15414

Sci
Jan 60
Vol 2, No 5

104,599

Gurevich, M. I.
INTEGAWAY FLOW PAST A PLATE SUBJECTED TO
IMPACT. [1984] 6p. 4 refs.
Order from RIS \$5.00

RIS S-2104

Trans. of Prikladnaya Matematika i Mekhanika
(USSR) 1957, v. 16, no. 1, p. 116-118.

1. High-Speed Flow
2. Fluid-Hydrodynamic
Characteristics
I. Gurevich, M. I.
II. RIS S-2104
III. Research Information
Service, New York

RIS S-2104

Office of Technical Services

(Mechanics--Hydrodynamics, TT, v. 5, no. 11)

59-14913

CAVITATION PROBLEMS: TRANSLATION OF THREE
RUSSIAN PAPERS, tr. by Gerta Cohen and Hirsh
Cohen. 3 Apr 59 [28]p. 15 refs. RPI Math Trans.
no. 3.

Order from OTS or SLA \$2.60

59-14913

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1952, v. 16, no. 1, p. 116-[118]; #1958, v. 22, no. 4,
p. 565-568; Akademiya Nauk SSSR. Doklady, 1956,
v. 111, no. 2, p. 312-[315].

Each article is available separately elsewhere.

DESCRIPTORS: *Cavitation, Fluid flow, Sheets,
Hydrodynamics, Impact shock, Subsonic flow,
Mathematical analysis.

Contents:

The impact on a lamina with discontinuous streamline
flow, by M. I. Gurevich

(Mechanics--Hydrodynamics, TT, v. 7, no. 12)over)

- I. RPI Math Trans-3
- II. Rensselaer Polytechnic
Inst., Troy, N. Y.

AEC-SCH-T-65-2
6
7

Office of Technical Services

Stresses and Strains in Cyclical Loading, by
B Yu. N. Rabotnov, 5 pp. UNCLASSIFIED

RUSSIAN, per, Prikl Matemat i Mek^h, Vol XVI, No 1,
1952, pp 121-122.

Sci Pub Lib No 54/2231

Scientific - Mathematics
Engineering

18,613

The Problem of a Submerged Jet, by Yu. N. Kuznetsov.

Full translation.

RUSSIAN, bimo per, Prikl Matemat i Mekh, Vol XVI,
USSR, 1952, pp 255-256.

AEC Tr 1632

TT. 383

Scientific - Mathematics

Aug 53 CTS

4824

On the Applicability of the Method of Variables
to Problems of Small Plastic-Elastic Deformations,
by V. N. Panferov

RUSSIAN, Prikl Mat i Mek, 1952, Vol XVI, No 3,
pp 319-322.

DT 2367
D.S.I.R. Tr No CTS 2

Scientific - Mathematics

List No 49, Apr 1953

1073

Theoretical Approach to the Determination of
Added Mass of a Rectangular Plate, by K. K.
Tyedjajevskiy

RUSSIAN, per, Prikl Mat i Mekh, Vol XVI, 1952,
pp 352-352.

A.R.E. Port Halstead 7 OT/191

Scientific - Mathematics

OTS/DEC

8231

Malkin, I. G.

ON A PROBLEM IN THE STABILITY THEORY OF
AUTOMATIC REGULATING SYSTEMS. [1961] [9]p.
3 refs.

Order from CTS or SLA \$1.10

62-10146

Trans. of Prikladnaya Matematika i Mekhanika
(USSR) 1952, v. 16, p. 365-368.

Another trans. is available from CTS \$1.10 as
AD-264 067, July 61, 9p.

DESCRIPTORS: *Control systems, *Linear systems,
Functions, Theory, Differential equations, Integral
equations, Perturbation theory.

This paper is concerned with the problem proposed
by Alizerman in regard to the stability of a set of non-
linear differential equations. Conditions for stability
are hypothesized by making a linear analogy to the
original non-linear system. The validity of these
(Mathematics, TT, v. 7, no. 9)

(over)

62-10146

1. Title: Lyapunov method
1. Malkin, I. G.

Office of Technical Services

Analytical Theory of Non-Linear Systems of
Ordinary Differential Equations, by N. P. Erugin

RUSSIAN, per, Prikl Mat i Mekh, Vol XVI, No 4,
1952, pp 465-486.

Co-op Tr Sch 36

See memo Sub 55/2647

Scientific - Mathematics
CTS/DHX

Price 8.16s.(1.2s.)

5558

Malkin, I. G.
 THE STABILITY OF AUTOMATIC REGULATION
 SYSTEMS (Ustoychivost' Sistem Avtomaticheskogo
 Regulirovaniya). Nov 60 [8]p. 1 ref. RTS 1698.
 Order from LC or SLA m\$1.80, ph\$1.80 61-15210

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
 1952, v. 16, no. 4, p. 495-499.

The stability problem of the system of type $(dx_s/dt) = p_{s1}x_1 + \dots + p_{sn}x_n + P_s(x_1, \dots, x_n)$, where $s = 1, 2, \dots, n$, is considered. For given conditions of $P_s(x_1, \dots, x_n)$ these functions satisfy, in the region $|x_s| \leq A$, the inequalities $|P_s(x_1, \dots, x_n)| < Q(|x_1| + \dots + |x_n|)$ where Q is a positive constant. The maximum values of this constant are found for which the equilibrium is asymptotically stable in the Lyapunov sense for any P_s function that satisfies the above conditions, and the permissible range of initial deviations are determined. A theorem in which these quantities are assessed is given: It is expressed directly in (Mathematics, IT, v. 5, no. 8) (over)

61-15210

1. Control systems--
Stability
2. Control systems--
Mathematical analysis
1. Malkin, I. G.
- II. RTS-1698
- III. Department of Scientific
and Industrial Research
(Q. Brit.)

151628

Office of Technical Services

The Calculation of Symmetrically Loaded Toroidal
Shells With the Aid of Trigonometric Series,
8 pp., by S. A. Tumarkyn

RUSSIAN, per, Prikl Mat i Mekh, Vol XVI, No 5, 1952,
pp 569-574.

Sci Mus Lib 53/1423

SLA 59-19140

CIA/FOO X-5488

Scientific - Mathematics
CTS/DEX

5955

Calculation of Vortex-Free Flow Over Profile
Lattices and the Construction of Lattices on the
Basis of a Given Velocity Distribution at the
Profiles, by L. F. Dorfman, 18 pp.

RUSSIAN, per, Prikl Matemat i Mekh, Vol XVI, 1952,
pp 599-612. 9210852

(LOAN) NLL REG. 0572.9 1962 (1,328)
A.C.S.I.L. Tr 1328

Sci - Math & Data Process
Sep 63

344,182

A Study of Theories of Fracture Under Combined Stresses, by L. Cornet, R. G. Grassi; Physical Significance of Invariants of Stress Used in the Theory of Plasticity, ~~Yz~~ by V. V. Novozhilov, 45 pp.

RUSSIAN, per, Prikl Matemat i Mekh, Vol XVI, 1952, pp 617-619.

AEC Tr NP-6712

Sci - Phys

73, 722

Sep 58

Stability of the Solution of a Certain Non-linear
Third Order Equation, by E. A. Barbashin.

RUSSIAN, bimo per. Prikl Matemat i Mekh, Vol XVI,
No 5, 1952, pp 629-632.

Co-op Tr Sch 57

USSR

Scientific - Mathematics

Feb 54 CTS

£1.125. (45.0d.)

9602

Beilin, E. A. and Dzhanelidze, G. Yu.
A SURVEY OF WRITINGS ON THE DYNAMIC
STABILITY OF ELASTIC BODIES (Obzor Rabot po
Dinamicheskoi Ustoichivosti Uprugikh Sistem). [1963]
44p 41rcfs
Order from OTS, SLA, or ETC \$4.60 TT-64-14269

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1952, v. 16 [no. 5] p. 635-648. (Abstract available)
Another trans. is available from OTS \$3.60 as
AD-269 945, 15 Nov 61, 32p.

DESCRIPTORS: *Elasticity, *Solids, Dynamics,
Stability, Load distribution, Motion, Mathematical
analysis, Partial differential equations, Theory,
Reviews, Mechanics.

A survey of work published in the USSR on the problem
of dynamic stability of elastic systems during the period
1924-1951 is presented. The paper is divided into three
(Mechanics, TT, v. 11, no. 7) (over)

TT-64-14269

I. Beilin, E. A.
II. Dzhanelidze, G. Yu.

Office of Technical Services

Strength of a Rapidly Rotating $\frac{6}{8}$ Cylinder, by
M. Sh. Mikeladze, 11 pp.

RUSSIAN, per, Prik Mat i Mekh, Vol XVI, 1952,
pp 706-710.

CIA/FDD X-4034

AEC-tr-4041

Sci - Engr
Jan 60

105,852

Kopzon, G. I.
TWO-DIMENSIONAL IMPACT IN A SLIGHTLY COM-
PRESSIBLE IDEAL FLUID. [1961] 7p. 6 refs.
Order from RIS \$5.00 RIS S-2105

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1952, v. 16, no. 6, p. 719-722.

AED-SC-T-65-268

61-22200

1. Compressible flow--
Physical factors
2. Liquids--Physical factors
1. Kopzon, G. I.
- II. RIS S-2105
- III. Research Information
Service, New York

159161

Office of Technical Services

(Mechanics--Hydrodynamics, TT, v. 5, no. 11)

The Propagation of a Whirling Jet in an Infinite
Space Filled With the Same Fluid, by
L. G. Loytsyanskiy,

RUSSIAN, per, Prikl Mat Mekh, Vol XVII, No 1,
1953, pp 3-16.

ATS-22429R

TPA3/TIB Tr No 4364

AT-22-1955 8

Scientific - Physics Mar 55 CTS

21,831

Canonical Transformations of Equations of the
Theory of Automatic Controls, by V. A. Troitskii,
14 pp.
RUSSIAN, per, Prikladnaya Mate i Mekhanika, Vol 17,
1953, pp 49-60.
ARM/RSIC-Tr-961-69

Sci/Math
Jul 70

A Method of Solution of a General Biharmonic Problem for a Rectangular Region, With Given Values of the Function and Its Normal Derivative on the Contour, by G. A. Grinberg, et al.

RUSSIAN, per, Prikl Matemat i Mekh, Vol XVII, 1953, pp 73-86.

DSIR LLU M.1492
(loan)

128,829

Sci - Phys

Oct 60

60-21909

Pyatnitskii, S. S.
THE WINTER OAK AND THE SUMMER OAK (Dub-
zimnyak i Dub-letnyak). [Nov 61] 11p. PL-480 Agr.
Order from OTS \$0.50 60-21909

Trans. of Priroda (USSR) 1953, v. 42, p. 97-102.

DESCRIPTORS: *Trees, *Forestry, *Plants, *Ecology,
Earth, *Economics, Climatic factors

Discussions are presented on the distribution and
characteristics of the two types, the origin of the two
types, and the importance of both types in forestry.

(Biological Sciences--Botany, TT, v. 7, no. 2)

- I. Pyatnitskii, S. S.
- II. PL-480 AGR (60-21909)
- III. National Science
Foundation, Washington,
D. C.

Office of Technical Services

Elastic Equilibrium of an Elliptical Ring, by
M. P. Shoromet'yev. UNCL

RUSSIAN, par, Prikl Mat i Mekh, No 17, 1953,
pp 107-113.

British Iron and Steel Ind
(no number given)

Sci - Math
Sep 59

98,385

The Oscillations of a Floating Body on the Surface
of a Heavy Fluid, by M. D. Haskins. UNCLASSIFIED

RUSSIAN, per, Prikladnaya Mekh, Vol XVII, 1953,
pp 165-170.

Navy 2127/T-283

DTMB

Sci - Phys

May 59

86,474

Estimation of Errors in the Approximate Solution
of Linear Problems, by M. G. Slobodyanskiy, 23 pp.

RUSSIAN, bimo per, Priklad Matemat i Mekh,
Vol XVII, No 2, Mar/Apr 1953, pp 229-244.

NACA N-37596

Scientific - Mathematics
CNS 73/Oct 1955

27,168

Integral Equations of Constrained Torsion and Stability
of Thin-walled Rods, by V. V. Bolotin, 7 pp.

RUSSIAN, bimo per, Prikl Matemat i Mekh, Vol XVII, No 2,
Mar-Apr 1953, p 245-248.

NACA - N-37217

USSR

Sci - ~~Aeronautics~~ *ENGINEERING*

25,810

Barenblatt, G. F.
ON THE MOTION OF SUSPENDED PARTICLES IN A
TURBULENT STREAM (O Dvishenu Vsveshennykh
Chastits v Turbulentnom Potoke). [1961] 13p. 14 refs.
[DSIR LLU] M. 2758.
Order from OTS or SLA \$1.60

61-23311

Unedited trans. of Prikladnaya Matematika i
Mekhanika (USSR) 1953, v. 17, p. 261-274.

DESCRIPTORS: *Liquid jets. Turbulence *Particles,
Motion

From the general equation, an equation for the hori-
zontal motion of a non-homogeneous liquid is obtained,
where the liquid is homogeneous in the horizontal
(direction) and stationary. (Author) (See also 60-23010)

(Physics, TT, v. 6, no. 9)

61-23311

L. Barenblatt, G. F.
II. DSIR LLU M. 2758

185532

Office of Technical Services

62-10181

Shimanov, S. N.

ON THE STABILITY OF THE SOLUTION OF A
NONLINEAR EQUATION OF THE THIRD ORDER.
[1961] [10p. 4 refs.]

Order from OTS or SLA \$1.10

62-10181

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1962, v. 17, no. 3, p. 369-372.Another trans. is available from OTS \$1.10 as
AD-264 174. STL-TR-61-5110-2, Mar 61, 10p.DESCRIPTORS: *Satellite vehicle trajectories, *Non-
linear differential equations, Functions, Statistical
tests, *Perturbation theory, Nonlinear systems.The stability is investigated of the null solution of a
system characterized by the third-order nonlinear
differential equation $\ddot{x} + f(x, \dot{x})\dot{x} + bx + cx = 0$, (1)
which is equivalent to $\dot{x} = y$, $\dot{y} = z$, and $\dot{z} = -f(x, y)z$
(Mathematics, TT, v. 8, no. 9) (over)I. Shimanov, S. N.
II. STL-TR-61-5110-2III. Periodical:
Prikladnaya Matematika i
Mekhanika (USSR) 1962,
v. 17

Office of Technical Services

Numerical Solution of a System of Differential
Equations Application of the Method to the Calcula-
tion of a Rotation Shell, by M. Sh. Mikeladze.
9 pp.

RUSSIAN, per, Prikladnaya Matematika i Mekhanika,
Vol 17, No 3, 1953, pp 382-386. 9700439
FTD-TT-65-1439

Sci/Math
Jun 66

302,534

A. N. Lyapunov's Method and Problems in Stability
in Large, by N. P. Yezugin, 14 pp.
RUSSIAN, per, Prikladnaya Matematika, Vol XVII, No 4,
1953, pp 369-400. 9697594
DNC ISIC-434
4576

Sci - Phys
Aug 65

287,269

Stability of Control Systems with two Active
Elements, by A. M. Letov.
RUSSIAN, per, Prikladnaya Matematika i Mekh,
Vol 17, No 4, 1953, pp 401-410.
NAVY/APL/JHU-T-2570

Nov 71

On the Question of the Calculation of the Motion of a
Gas in a Local Shock-free Supersonic Zone, by
L. B. GOROSHCHENKO, 5 pp. UNCLASSIFIED

RUSSIAN, per, Prikl Mat i Mek, Vol XVII, 1953,
pp 432-430.

Sci Nu Lib 54/1622 1692

Scientific - Physics, Mathematics

17.729

On Propagation of Instantaneous Excitations in a
Medium With a Nonlinear Dependence of Tensions on
Deformations, by G. I. Barenblatt, 13 pp.

RUSSIAN, per, Prikl Matk i Mekh, Vol XVII, 1953,
pp 455-460. 9216106

ABC-UCRL-TI-989(L)

Sci - Russ Sci
Jan 64

246, 460

Some Problems of the Laminar Filtration of a Fluid
in Heterogeneous Twisted Layers of Variable Thick-
ness, by O. V. Golubeva, 7 pp.

RUSSIAN, per, Prik Matemat i Mekh, Vol XVII, 1953,
pp 485-490.

Sci Tr Center
RT-1488

Scientific - Mathematics

CTS/DEX

18,749

On Free Thermal Convection in Vertical Cylinders of
Arbitrary Section, by G. A. Bugaenko, 5 pp.

RUSSIAN, per, И Прик Matemat i Mekh, Vol XVII,
1953, pp 496-500.

Sci Mus Lib No 54/1113

Scientific - Mathematics

Jun 54 CTS

15,107

On the Determination of the Equilibrium States of a
~~KIPPI~~ Circular Shell Under Axially-Symmetric Loading,
by N. A. Alamyaye, 25 pp.

RUSSIAN, bimo per, Prik Matemat i Mekh, Vol XVII, No 5,
1953, pp 517-528.

36,090
Sci Tr Center RT-3647

Scientific - Physics

Jun 56/dax

Kamenkov, G. V. and Lebedev, A. A.
ON STABILITY OF MOTION IN A FINITE TIME
INTERVAL [AND] NOTES. [1963] [23]p. 6 refs.
Free copies available from Boeing Scientific Research
Labs. Library as Boeing Trans. R16 and R17. When
supply is exhausted, order from OTS
or SLA \$2.60 63-16987

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1953, v. 17, p. 529-540; 1954, v. 18, p. 512.

DESCRIPTORS: *Motion, *Stability, Time, *Differential
equations, Perturbation theory, Numerical analysis,
Integrals, Real variables.

The solution of the problem of stability is reduced to an
investigation of the integrals of the equations of
perturbed motion of the type $\frac{dx_1}{dt} = X_1, \dots, \frac{dx_n}{dt} = X_n$.
(Mechanics, TT, v. 10, no. 9) (over)

63-16987

I. Kamenkov, G. V.
II. Lebedev, A. A.
III. Boeing Trans-R(16-17)
IV. Boeing Scientific Research
Labs., Seattle, Wash.

Office of Technical Services

EXPERIMENTAL HYDRODYNAMIC IMPACT OF A
SPHERE ON A FREE SURFACE OF A LIQUID.
[1961] 15p. 7 refs.
Order from NIS \$20.00

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1953, v. 17, no. 5, p. 579-592.

RIS S-213

01-22201

- I. Schwarz--Hydrod. and
characteristics
2. Liebig--Physical Chem.
- I. Elsh, Ye. L.
- II. RIS S-2103
- III. Research Information C
lce, New York

Ad-SEL-T-65-250

104175

Office of Technical Services

(Mechanics--Hydrodynamics, I.T. v. 5, no. 11)

Calculation of the Profile of a Hollowing Out
Under Creep Conditions, by A. G. Mikhlin
UNCL

RUSSIAN, per, Prikl Mat Mekh, Vol XVII, 1953,
pp 615-618.

DSIR Lending Library Unit M.40

Sci - Math
Apr 59

83,976

The Behavior of Dynamic Systems and Systems of Automatic Control Having Several Control Organs Near the Boundary of a Region of Stability, by V. A. Troitskii, 14 pp.
RUSSIAN, per, Prik Mate i Mekh, Vol 17, 1953, pp 673-684.
ARM/RSIC-Tr-968-69

Sci/Math
Jul 70

61-22202

Blekh, Ye. L.
HORIZONTAL IMPACT OF AN ELLIPSOID OF RO-
TATION ON AN IDEAL LIQUID HAVING A FREE
SURFACE. [1961] 24p. 6 refs.
Order from RIS \$25.00

RIS S-2107

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1953, v. 17, no. 6, p. 705-726.

1. Ellipsoids--Hydrodynamic characteristics
2. Liquids--Physical factors

- I. Blekh, Ye. L.
- II. RIS S-2107
- III. Research Information Service, New York

007171

Office of Technical Services

(Mechanics-Hydrodynamics, TT, v. 5, no. 11)

AEL-SCL-T-65-251

Conventional Diffusion in a Submerged Jet, by Y. B.
Rumr, 6 pp.

RUSSIAN, per, Priklad Mat i Mekh, Vol XVII, No 6,
Nov/Dec 1953, pp 743, 744.

SLA Tr R-119 (1119)

Sci - Mathematics

54,601

Oct 57

V
The Determination of Large Deflections of a Cylindrical Panel, Resting on Flexible Inextensible Ribs, Subjected to External Normal Loading, by Kh. M. Mushtari, I. V. Svirski, 12 pp.

RUSSIAN, bimo per, Prikl Matemat i Mekh, Vol XVII, No 6, 1953, pp 755-760.

Sci Tr Center RT-3646

36,128

Scientific - Engineering

Jun 56/dex

On the Problem of a Streamlined Profile
in a Near-Sonic Flow, by A. F. Kryuchin.
RUSSIAN, per, Prikladnaya Matematika i
Mekhanika, Vol XVIII, 1954.
OTS TT-64-71432

Jan 67

318,668

Wave Motions of a Heavy Liquid, by M. D.
Khaskind, 16 pp.

RUSSIAN, per. Prik^{mat}l Mat^{mat} i Mekhanika, Vol XVIII,
1954, pp 15-26.

CIA/FDD/ Z-202

30,879

Scientific - Physics

63-15671

Feodos'ev, V. I.
ON THE STABILITY OF A SPHERICAL SHELL, SUB-
JECTED TO THE ACTION OF EXTERNAL HYDRO-
STATIC PRESSURE [Neustanovivsheesya Dvizhenie
Vyzkol Zhidosti Sozdavaemoe Vrashchayushchimsya
Diskom] tr. by George Herrmann. Mar 56 [16]p. 7 refs.
DTMB Trans-266.
Order from OTS or SLA \$1.60

63-15671

Trans. of Prikladnaya Matem[atika] i Mekh[anika]
(USSR) 1954, v. 18 [no. 1] p. 35-42.
Another trans. is available from OTS or SLA \$1.10 as
62-23112, MDF F-104 [1961] 10p.

DESCRIPTORS: Elastic shells, Structural shells,
Spheres, Stability, Pressure, *Hydrostatic pressure.

(Mechanics, TT, v. 9, no. 10)

- I. Title: Spherical shells
- I. Feodos'ev, V. I.
- II. DTMB Trans-266
- III. David Taylor Model Basin,
Washington, D. C.

Office of Technical Services

Duvakin, A. N. and Letov, A. M.
ON THE STABILITY OF CONTROL SYSTEMS WITH
TWO CONTROLLERS. [1961] [11]p. 4 refs.
Order from OTS or SLA \$1.60 62-10185

Trans. of Prikladnaya Matematika i Mekhanika
(USSR) 1954, v. 18, p. 163-166.
Another trans. is available from OTS \$1.60 as
AD-264 153, STL-TR-61-5110-17, May 61, 12p.

DESCRIPTORS: *Control systems, Linear systems,
*Differential equations, Perturbation theory, *Func-
tions, Inequalities, Stability, Theory, Time, Motion.

An analysis is presented on the control system de-
scribed by a differential equation. The problem is to
determine the sufficient conditions for the asymptotic
stability of the trivial solution of the control system
for any finite initial perturbations. Details are given
on the construction of the Lyapunov function. Results
(Mathematical Engineering, v. 8, no. 10) (over)

62-10185

1. Title: Lyapunov functions
I. Duvakin, A. N.
II. Letov, A. M.

Office of Technical Services

Lebedev, A. A.
ON THE PROBLEM OF STABILITY OF MOTION IN
A FINITE TIME INTERVAL. [1963] 32p 6refs
Free copies available from Boeing Scientific Research
Labs. Library as Boeing Trans. R20. When supply
is exhausted, order from OTS or SLA \$3.60

63-20238

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1954, v. 18, p. 75-94.

DESCRIPTORS: *Perturbation theory, *Stability,
*Motion, Equations of motion, Differential equations.

The method given by G. V. Kamenko is utilized to de-
fine, with respect to equations of the first approxi-
mation, conditions of stability of transient motion for
finite initial, and finite, constantly acting perturbations.
In this connection a method is given for determining
the time interval in which unperturbed motion is stable.
(Author)

63-20238

I. Lebedev, A. A.
II. Boeing Trans-R20
III. Boeing Scientific
Research Labs.,
Seattle, Wash.

(Mechanics. TT v. 10, no. 12)

Office of Technical Services

Concerning the Invertibility of the Lyapunov's
Theorem of Asymptotic Stability, by I. G. Malkin,
13 p.

RUSSIAN, per, Prikladnaya Matematika i Mekhanika,
Vol XVIII, 1954, pp 129-138. S700469
RSIC-526

Sci-Math
Jul 66

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On the Analysis of Shells Subjected to Concentrated
Loads, by A. L. Gol'denvogtzer, 13 pp.

RUSSIAN, bimo per, Prikl Matemat i Mekh, Vol XVIII,
No 2, 1954, pp 181-186.

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Sci. Tr Center RT-3644

Scientific - Physics

Jun 56/dex

Steady Motion of a Fluid Heated From Below, by
V. S. Sorokin.

RUSSIAN, per, Fizik Mat i Mekh, Vol XVIII, 1954,
pp 197-204.

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Sci - Physics
Jul 57

49,383

Application of the Galerkin Method to the Problem of the Stability of Unevenly Heated Liquids, by E. M. Zhukhovitskii, 15 pp.

RUSSIAN, per, Prikl Mat i Mekh, Vol 18, No 2, 1954, pp 205-211.

F911042868

AEC-ES-Tr-74

Sci-Phys
Mar 58

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On Waves of Loading and Unloading Arising From the
Motion of an Elastic or Plastic Flexible Fibre,
by H. Cristescu, 18 pp.

RUSSIAN, per, Prikl Matemat i Mekhanika, Vol XVIII,
May/Jun 1954, pp 257-264. CIA V 6922

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Sci - Physics

Aug 1956

OTS TT-64-71246

Bugaenko, G. A.
ON FREE CONVECTION IN AN INCLINED CYLIN-
DER (O Svobodnoi Konveksii v Naklonnom Tsilindre).
July 61 [5]p. 2 refs. RTS 1884.
Order from OTS or SLA \$1.10

61-27041

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1954, v. 18, no. 2, p. 212-214.

DESCRIPTORS: *Conical bodies, Continuous media,
*Convection, Mathematical analysis, Heat transfer.

(Physics--Thermodynamics, TT, v. 7, no. 2)

61-27041

- I. Bugaenko, G. A.
- II. RTS-1884
- III. Department of Scientific and
Industrial Research
(Gt. Brit.)

Office of Technical Services

On the Question of Constructing Approximate Theories
of Computation of Shallow Cylindrical Shells, by
S. A. Ambartsumian, 11 pp.
RUSSIAN, per, Prikl Mate i Mekh, Vol XIX, 1954,
pp. 303-312.
CIA/FDD X-5437

Sci - Phys
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TT-64-18556

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62-10184

Bartashin, E. A. and Krasovskii, N. N.
ON THE EXISTENCE OF LYAPUNOV FUNCTIONS
IN THE CASE OF ASYMPTOTIC STABILITY IN
THE LARGE. [1961][13p. 5 refs.
Order from OTS or SLA \$1.60 62-10184

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1964, v. 18, p. 345-350.
Another trans. is available from OTS \$1.60 as AD-
AD-264 130, STL-TR-61-5110-20, May 61, 12p.

DESCRIPTOR: Satellite vehicle trajectories, *Flight
paths, *Spheres, *Stability, Motion, Functions, Per-
turbation theory, Differential equations, Partial dif-
ferential equations

Definitions on stability are given among which is in-
cluded a detailed definition of stability in the large of
two systems with time delay. Two theorems are stated
with detailed proofs for solution of these systems.
(Mathematics, TT, v. 8, no. 9) (over)

1. Title: Lyapunov functions
- I. Bartashin, E. A.
- II. Krasovskii, N. N.

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Unsteady Motion of a Viscous Fluid Created by a
Rotating Disc, by D. E. Dolidze, 19 pp.

RUSSIAN, bino per, Prikladnaya Matematika,
Vol XVIII, 1954, p 371.

Morris D. Friedman D-113
\$5.00

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Scientific - Physics

CRS 65/Feb 55

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63-18316

Bulakh, B. M.

ON THE THEORY OF CONICAL FLOWS. [1963] 5p.
1 ref.Free copies available from: Boeing Scientific Research
Labs. Library as Boeing Trans. R74. When supply is
exhausted, order from OTS or SLA \$1.10, 63-18316Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1954, v. 18, no. 4, p. 452-453.DESCRIPTORS: Gas flow, Velocity, Numerical analysis,
*Conical bodies, *Supersonic flow, *Axially symmetric
flow.

(Mechanics--Aerodynamics, TT, v. 10, no. 8)

- I. Bulakh, B. M.
- II. Boeing Trans-R74
- III. Boeing Scientific Research
Labs., Seattle, Wash.

Office of Technical Services

On Conditions for the Existence of a Center,
by L. N. Belyustina, 2 pp.

RUSSIAN, bimo per, Priklad Matemat i Mekh,
Vol XVIII, 1954, p 511.

Morris D. Friedman 8-107
\$1.00

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Scientific - Physics

CTB 65/Feb 55

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Problem of Near Sonic Flow Past a Profile, by A. F. Kriuchin, 17 pp, (AP 653055).

RUSSIAN, per, Prik Matemat i Mekh, Vol XVIII, No 5, Moscow, 1954, pp 547-560.

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Scientific - Aeronautics

Aug 55

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El'sh, Ye. L.
ON THE EFFECT OF AN ELLIPSOID OF REVOLU-
TION FLOATING ON THE SURFACE OF A HEAVY
LIQUID. [1951] 19p. 2 refs.
Order from RIS \$4.50

RIS S-2103

Trans. of *Fiziko-Matematika i Mekhanika* (USSR)
1954, v. 18, no. 5, p. 631-636.

AEC-SC-T-65-269

(Mechanics--Hydrodynamics, TT, v. 5, no. 11)

SI-2103

- I. *Fiziko-Matematika i Mekhanika*
- II. *Fiziko-Matematika i Mekhanika*
- III. *Fiziko-Matematika i Mekhanika*
- IV. *Fiziko-Matematika i Mekhanika*
- V. *Fiziko-Matematika i Mekhanika*
- VI. *Fiziko-Matematika i Mekhanika*
- VII. *Fiziko-Matematika i Mekhanika*
- VIII. *Fiziko-Matematika i Mekhanika*
- IX. *Fiziko-Matematika i Mekhanika*
- X. *Fiziko-Matematika i Mekhanika*
- XI. *Fiziko-Matematika i Mekhanika*
- XII. *Fiziko-Matematika i Mekhanika*
- XIII. *Fiziko-Matematika i Mekhanika*
- XIV. *Fiziko-Matematika i Mekhanika*
- XV. *Fiziko-Matematika i Mekhanika*
- XVI. *Fiziko-Matematika i Mekhanika*
- XVII. *Fiziko-Matematika i Mekhanika*
- XVIII. *Fiziko-Matematika i Mekhanika*
- XIX. *Fiziko-Matematika i Mekhanika*
- XX. *Fiziko-Matematika i Mekhanika*

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Stability of Cylindrical and Conical Beams of
Circular Cross Section, With Simultaneous Action
of Axial Compression and External Normal Pressure,
by Kh. M. Mushtari, A. V. Sachenkov, 15 pp.

RUSSIAN, per, Prikl Matemat i Mekh, Vol XVIII, No 6,
1954, pp 667-674.

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Sci - Phys

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On the Propagation of Sound Waves in a Viscous
Gas With Heat Conduction, by A. A. Kaspar'yants,
9 pp.

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Vol XVIII, 1954, p 729-737

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Scientific - Physics

CTB 67/Apr 55

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Concerning Stability of One Gyroscopic System,
by I. Z. Pirogov.

RUSSIAN, per, Prikladnaya Matematika i
Mekhanika, pp 1134-1136.

*EFDL Ft Belvoir
T-1109

Sci - Engr

Jun 61

Nozzle design, by I. M. Yur'yev.
RUSSIAN, per, Prikladnaya Matematika
i Mekhanika, No XIX, 1955.

*FTD-MT-65-384

Changed to HT-66-159

April 14, 1966

Sci-
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On the $\mathbb{R}$ Equations in the Theory of Plasticity,
by V. V. Sokolovskiy, 21 pp.

RUSSIAN, bimo per, Drik Matemat i Mekh, Vol
XIX, 1955, pp 41-54.

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Sci - Mathematics,

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Voronovskaya, E. V.
ON THE MODIFICATION OF CHAPLYGIN'S METHOD
FOR DIFFERENTIAL EQUATIONS OF FIRST ORDER.

14p 2refs

Order from OTS, SLA or ETC \$1.60 TT-64-16022

Trans. of Prilozheniya Matematiki i Mekhanika (USSR)
1955, v. 19, no. 1, p. 121-126.

(Mathematics, TT, v. 12, no. 4)

TT-64-16022

L. Voronovskaya, E. V.

Office of Technical Services

Zubov, V. I.
QUESTIONS IN THE THEORY OF LYAPUNOV'S
SECOND METHOD: THE CONSTRUCTION OF THE
GENERAL SOLUTION IN THE DOMAIN OF ASYMPTOTIC STABILITY. Aug 62 [47]p. 8 refs.
Order from OTS or SLA \$4.60 62-20253

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1955, v. 19 [no. 2] p. 179-210.

DESCRIPTORS: *Control systems, *Stability, Motion,
Equations of motion, Differential equations, Real
variables, Functions, Series.

This paper is the best source for "Zubov's Method",
for constructing Lyapunov functions. It answers
almost all theoretical questions concerning the concept
of asymptotic stability. (Author)

(Engineering--Electronic, TT, v. 9, no. 11)

62-20253

1. Title: Lyapunov method
2. Title: Zubov's method
- I. Zubov, V. I.
- II. Lyapunov, A. M.
- III. Title: Construction ...

Office of Technical Services

On the Integration of a System of Differential
Equations, by M. M. Smirnov, 6 pp.

RUSSIAN, per, Priklad. Mat. i Mekhan, Vol XIX,
1955, pp 217, 218.

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Sci - Phys
Mar 59

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Method of Determining Conditions for the Existence
of Periodic Solutions for Non-Linear Systems, by
S.N. Shimanov.

RUSSIAN, bimo per, Prikl Mat i Mekh, Vol XIX,
No 2, 1955, pp 225-228.

T.I.L. T-4715

Sci - Physics

43, 248

On a Case of Pre-Critical State of Bending of a
Cylindrical Shell, by N. A. Alfutov, 5 pp.

RUSSIAN, per, Prikl Matema i Mekh, Vol ~~XXXX~~ XIX,
No 2, 1955, pp 249, 250.

Sci Tr Center
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Sci - Physics

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Aug 1956

On the Theory of Stability of a Spherical Shell Sub-
jected to External Pressure (With Reference to the
Paper by V. I. Feodos'ev), by Kh. M. Mashtari, 10 pp.

RUSSIAN, bino per, Prik Matemat i Mekh, Vol XIX, No 2,
1955, pp 251-254.

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Scientific - Engineering

Jun 56/dex

The Stability of Non-Steady Motions of Control
Systems, by A. M. Letov.
RUSSIAN, per, Prikladnaya Matematika i Mekh,
Vol 19, No 3, 1955, pp 257-262.
NAVY/APL/JHU-T-2568

Nov 71

62-20396

Razumikhin, B. S.
ON THE STABILITY OF THE TRIVIAL SOLUTION OF
SECOND ORDER SYSTEMS. Sep 62 [12]p. 6 refs.
Order from OTS or SLA \$1.60 62-20396

Trans. of Zhurnal Matematika i Mekhanika (USSR)
1955, v. 13, no. 3, p. 279-286.

DESCRIPTORS: "Differential equations. Equations of
motion. Stability. *Numerical methods and procedures.
Parabolic bodies. Geometry.

Various classes of second order systems which admit
Liapunov functions of special forms are studied. The
discussion is largely geometrical. (Author)

(Mathematics, IT, v. 9, no. 7)

1. Title: Lyapunov method
2. Title: Stability analysis
1. Razumikhin, B. S.

Office of Technical Services

61-10404

Slobodyanskiy, M. G.
ON THE EVALUATIONS FOR EIGENVALUES OF A
SELF-CONJUGATED OPERATOR. [1961] [37]p. 15 refs
Order from OTS or SLA \$3.60 61-10404

I. Slobodyanskiy, M. G.

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1955, v. 19, no. 3, p. 295-314.

DESCRIPTORS: *Integral equations, *Functional
analysis.

Lectured at the conference on the theory of elasticity,
the theory of plasticity, and on theoretical questions
of engineering mechanics, December 22-25, 1954, in
the Institute of Mechanics of the Academy of Sciences
of the USSR.

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Office of Technical Services

(Mathematics, TT, v. 6, no. 1)

Various Forms of Flow Equations for Visco-
plastic Fluids, and Law of Hydrodynamic Similarity,
by A. F. Kasimov, A. Kh. Mirzazhansade, 9 pp.

RUSSIAN, per, Prik Mat i Mekh, Vol XIX, 1955,
pp 348-352.

CIA/FDD X-2752

Sci-Math
Apr 58

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Bluh, Ye. L.
INFLUENCE OF THE DEPTH OF A SUBMERGED
SPHERE ON THE COEFFICIENT OF ADDED MASS
DURING HORIZONTAL IMPACT. [1961] 9p. 3 refs.
Order from RIS \$1.50 RIS S-2109

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1965, v. 19, no. 3, p. 353-358.

61-22504

- I. Spheres--Hydrodynamic characteristics
1. Bluh, Ye. L.
- II. RIS S-2109
- III. Research Information Service, New York

4EC-SC-T-65-270

10810

Office of Technical Services

(Mechanics--Hydrodynamics, TT, v. 5, no. 11)

61-10402

Svirskiy, I. V.
ON THE QUESTION OF THE CONSTRUCTION OF
VARIATIONAL CALCULATION METHODS. 1960 [26]p
1 ref.

Order from LC or SLA ml\$2.70, ph\$4.80 61-10402

Trans. of Prikl[adnaya] Mat[ematika 1] Mekh[anika]
(USSR) 1955, v. 19, no. 4, p. 453-462.

Means are suggested for determining approximate
solutions by means of Rayleigh procedures. The
methods are illustrated by a number of examples.

1. Approximate computation--
Theory
2. Title: Calculus of variations
3. Title: Rayleigh procedure
1. Svirskiy, I. V.

101556

Office of Technical Services

(Mathematics, TT, v. 5, no. 10)

TT-64-16382

L. Kronberg, V. A.

Kronberg, V. A.
ON THE FIRST VARIATION OF THE SOLUTION TO
BOUNDARY PROBLEMS IN THE THEORY OF THE
POTENTIAL FOR THE VARIATION OF THE BOUND-
ARY SURFACE. 12p 2refs.
Order from OTS, SLA, or ETC \$1.60 TT-64-16382

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1955, v. 19, no. 4, p. 453-470.

(Mechanics--Aerodynamics, TT, v. 12, no. 4)

Office of Technical Services

An Application of Dorodnitsyn's Variables in
Boundary Layer Theory, by Yu. A. Demyanov.
UNCLASSIFIED

RUSSIAN, per, Prik Mat i Mekh, Vol XIX, 1955,
pp 507, 508.

RAE Tr 721

Sci - Phys
Sep 58

72,180

Some Special Solutions of the Boundary Layer
Equations for a Compressible Fluid, by A. Sh.
Dorfman, E. T. Shvets, 8 pp.

RUSSIAN, per, Prikl Matemat i Mekh, Vol XIX, 1955,
pp 509-512. CIA 9030257

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Sci - Phys

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TT-64-71367

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Krasovskiy, N. N. ON THE STABILITY IN FIRST APPROXIMATION. [1961] [28]p. 11 refs. Order from LC or SLA mi\$2.70, ph\$4.80 61-10773 Trans. of Prikladnaya Matematika i Mekhanika (USSR) 1955, v. 19, no. 5, p. 517-530. The second method of A. M. Liapunov is employed in studying the stability of solutions of perturbation equations. 151852 (Mathematics, IT, v. 5, no. 9)	61-10773 1. Differential equations-- Theory 2. Perturbation theory 1. Krasovskiy, N. N. Office of Technical Services
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Loitsyanskii, L. G.
HYDRODYNAMIC THEORY OF A SPHERICAL BEARING (Gidrodinamicheskaya Teoriya Sfericheskogo Podshkivnitsa). [1961] [23]p. (foreign text included)
1 ref. [DSIR LLU] M. 2606.
Order from OTS or SLA \$2.60

61-23272

Trans. of Priladnaya Mat[ematika i] Mekh[anika]
(USSR) 1955, v. 19 [no. 5] p. 531-540.

DESCRIPTORS: *Bearings, Spheres, Lubrication,
*Hydrodynamics.

An approximate solution is presented of the problem of determination of pressure, force and moment acting on a spherical body which performs a general movement in a spherical space, filled with a viscous fluid. The velocity of translatory motion of the body and angular velocity of its rotation are assumed to be known and constant, and the motion is considered to be quasi-steady. The investigation is limited to the analysis of the par-
(Machinery--Machine Parts, TT, v. 6, no. 4) (over)

61-23272

I. Loitsyanskii, L. G.
II. DSIR LLU M. 2606

177703

Office of Technical Services

~~XXI~~ Qualitative Methods in the Theory of Stability,
by N. P. Erugin, 32 pp.

RUSSIAN, per, Prikladnaya Matematika i Mekhanika,
Vol XIX, No 5, 1955, pp 599-416.

OTS X3 2-20394

230,617

Sci
May 63

Barbashin, Ye. A. and Skalkina, M. A.
ON THE QUESTION OF STABILITY IN FIRST AP-
PROXIMATION. 30 Dec 60 [5]p. 2 refs.
Order from OTS or SLA \$1.10 61-14763

Trans. of Prikladnaya Matematika i Mekhanika (USSR)
1955, v. 19, no. 5, p. 623-624.

DESCRIPTORS: Numerical analysis, *Differential
equations, Perturbation theory, Theory.

The author examines in a qualitative sense and pre-
sents a theorem relating solutions of the homogeneous
first order variational equations to solutions of the non-
homogeneous equations given on exponentially bounded
stable solution of the homogeneous equations and
certain assumptions on the nature of the non-homogene-
ous equations. (Translator)

(Mathematics, TT, v. 6, no. 1)

61-14763

I. Barbashin, Ye. A.
II. Skalkina, M. A.

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Kreyn, M. G.
ON THE CRITERIA OF THE STABLE LIMITED-
NESS OF THE SOLUTIONS FOR PERIODICAL
CANONICAL SYSTEMS. [1961] [67]p. 13 refs.
Order from LC or SLA m\$3.90, p\$10.80 61-10842

Trans. of Prikladnaya Matematika i Mekhanika
(USSR) 1955, v. 19, no. 6, p. 644-650.

151871

(Mathematics, TT, v. 5, no. 9)

61-10842

1. Differential equations--
Theory
1. Kreyn, M. G.

Office of Technical Services

Asymptotic Solutions for the Equations of Uniform
Non-Equilibrium Motion of an Ideal Gas and the
Asymptotic Decay of Shock Waves, by Yu. L. Yakimov.

RUSSIAN, per, Prik Mat i Mekh, Vol XIX, 1955,
pp 681-692.

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Sci-Phys

Dec 59

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The Conditions for the Appearance of Convection
in a Binary Mixture, by B. A. Vertgein, 9 pp.

RUSSIAN, per, Prikladnaya Matematika i
Mekhanika, Vol 19, No 6, 1977, pp 745-750.

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Sci - Materials

Aug 67

Calculation of the Flow Over a Rotating Circular
Lattice, by L. A. Dorfman, 7 pp.

RUSSIAN, per, Prikl Matemat i Mekh, Vol XII, 1956,
pp 121-125. 9210853

A.C.S.I.L. Tr 1330

Sci - Math & Data Process
Sep 63

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